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(71) Applicant(s)

Microsulis Plc (incorporated in the United Kingdom) Microsulis House, Parklands Business Park, DENMEAD, Hampshire, PO7 6XP, United Kingdom

(72) Inventor(s) **Nigel Cronin**  (51) INT CL7 A61B 18/18 // A61N 5/04 , H01Q 19/09

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(74) Agent and/or Address for Service Withers & Rogers Goldings House, 2 Hays Lane, LONDON, SE1 2HW, United Kingdom

## (54) Abstract Title Radiation applicator

(57) Radiation applicators comprise an elongate device having an antenna (240, 340) at their tip for coupling radiation into biological tissue and a dielectric body (250, 350) surrounding the antenna so as to encompass substantially the whole of the near-field region of the antenna and/or to enhance transmission of radiation in the forward direction. The body (250, 350) may be cylindrical with the antenna (240, 340) along its axis. The antenna may be  $\chi$ 2 in length and  $\chi$ 2 in radius. The tip (270) of the antenna (240) may be rounded hemispherical with radius  $\lambda/2$  to enhance forward transmission of radiation. The dielectric constant ( $\epsilon$ ) of the body (250, 350) is as high as possible to reduce its diameter at a desired operating frequency but may be matched to the surrounding tissue by another layer of dielectric material (380) with a value (ε) intermediate that of the core (360) of the body (350) and the tissue.

